

**From:** Richard Seeger [richards@harvey-lynch.com]  
**Sent:** Thursday, January 31, 2008 4:37 PM  
**To:** Rules Comments  
**Subject:** RIN 1010-AD11

**Attachments:** image002.png

**PROPOSED RULE – COMMENTS**

MMS Outer continental Shelf pipeline and pipeline Rights-of-Way regulations

From:  
 Richard Seeger  
 Seascope Technical Resources  
 12718 Century Drive  
 Stafford, Texas 77477  
 713 703-3555  
[SeascopeRS@earthlink.net](mailto:SeascopeRS@earthlink.net)

To:  
 Minerals Management Service  
 Attention: Regulations and Standards Branch  
 381 Elden Street, MS-4024  
 Herndon, Virginia 20170-4817

**“Pipelines and Pipeline Rights-of-Way, 1010-AD11”**

January 31, 2008

Note: Message in italics submitted on Jan 29,

**COMMENTS:**

*My background in geophysical and geotechnical survey in the OCS stretches back to the mid 1960s prior to the MMS being involved in the development of regulations and the welcome NTLs which began providing safety nets for field developments. I am familiar with the NTLs in effect at this point and the following comments relate specifically to Pipeline and Pipeline Rights-of-Way.*

*As public safety is of prime consideration to all regulations I would like to comment on possible pipeline inspection procedures following hurricanes.*

*Obviously the sheer magnitude of pipeline density throughout the Gulf of Mexico would preclude a geophysical survey of all pipeline routes to determine seafloor scour, pipeline movement or depth-of-cover. The MMS NTL No. 2005-G20 in response to hurricane Katrina and Rita requires visual inspection, scanning sonar, sidescan sonar and magnetometer at pipeline crossings and tie-ins. Assuming that some of these guidelines are in consideration for inclusion in the new NTL, the following is suggested.*

- A) *To facilitate further investigations of the pipelines stability, consider a chirp subbottom profiler, 200 kHz sidescan sonar and a magnetometer to be implemented along major sections of each route. These surveys can be conducted rapidly using a Z pattern along the pipeline. The systems would provide information as to depth-of-cover, scour, sediment redistribution, and pipeline movement.*  
*The “Chirp” subbottom profiler can provide fine resolution of the first few milliseconds from the seafloor that can be masked by a conventional discrete frequency (3.5 – 7 kHz) system.*

*Utilized in conjunction with a dual frequency echo sounder can help determine the thickness of flocculent in shallow water areas. A sidescan sonar operating at 200 kHz will provide improved backscatter data useful in determining sediment distribution or scour. Systems are available that combine sidescan sonar and multibeam. The data is co-registered which allows amplitude data to be added to the bathymetry for high definition of seafloor sediment characteristics (i.e. Teledyne Benthos C3D).*

- B) Areas of seafloor instability – Storms can cause wave and current-induced movements of near shore bottom sediments, barrier islands, and shorelines that can affect the depth of burial and integrity of pipelines laid in waters less than about 60 feet deep. Other challenging areas lie in the Mississippi Delta System where unconsolidated mud accumulations, rapidly deposited during high river flows, move downslope in mass movements when disturbed by storm waves. Pipelines and structures in the path of such movements can be moved and otherwise exposed to severe stresses which may cause failure. Mudslides and liquefaction potential are subject in these areas and cause a threat to buried pipelines in water depths less than 200 ft. and for those on the seafloor surface. These problem areas often cannot be surveyed using typical geophysical techniques due to signals being absorbed by flocculent or fluid mud above the seafloor surface and when an impedance interface required for a seismic reflection is non-existent. The “natural seafloor” surface must be determined using other methods.*

*Determining soils stability at the pipeline location will most likely require direct measurement of a vertical profile of soils densities through the fluid mud to the point where shear strengths can effectively support and stabilize a pipeline. The measurements may involve coring tools, bottom samplers and a system like the Densitune or RheaTune systems that measure soils density and sheer stress in pascal units. The sensors are lowered through the unconsolidated sediment until refusal. The data then correlated with piston cores or box soils samples can provide a profile of existing soils stability parameters that can be entered into a GIS database. These profiles can be obtained and included in a Pipeline Integrity Program. It is anticipated that only a few locations along the pipeline route would be required.*

*Data acquisition methods used for geohazard surveys are probably not the most effective approach to the determination of seafloor soils stability that may impact pipeline integrity. Specialized systems and survey methodology are available that may be deemed more appropriate for the determination of unstable soils for inclusion in the new NTL.*

*Upon request, more specific and detailed information on geophysical and geotechnical systems and survey methodology will be made available to your offices.*

As there is a MOU between the MMS and DOT concerning pipeline safety and implementation of “Integrity Management Programs” I am adding the following information that may be of some use for the marriage of offshore and shallow water regulatory compliance.

Telephone conversation with Ms. Betsock of the D.O.T. and followup email.

Ms. Barbara Betsock U.S. D.O.T./PHMSA/PHP-1  
Wash., D.C.

Dec. 19, 2007

Dear Ms. Betsock:

Thank you for your time during our telephone conversation this afternoon, it was very helpful.

I will follow up with PHMSA and hopefully become involved with R&D opportunities.

Briefly, my query has to do with pipeline depth-of-cover survey requirements for water depths of <15 ft. in the GOM. This is covered in 49 CFR 192 & 195. However, there are two issues that need to be addressed in detail.

- 1) Defining the "natural seafloor" surface when referencing pipeline depth. The techniques now used (divers' hand penetration into soils) is completely inadequate and other, less costly and more accurate methods can be implemented. This becomes a major factor in areas where "flocculent or fluff" has accumulated and can have substantial impact on reburial requirements and costs to the pipeline operator. It also becomes a safety issue when depth-of-cover is minimal
- 2) The spacing between sample points along the pipeline. This is not stipulated in the regulations and requires the pipeline operator to decide this on their own. This should be a standard interval.

I had in-depth discussions with the senior staff of the D.O.T. Office of Pipeline Safety in Houston a few months ago. They were very supportive and agreed that some parts of the regulations glossed over some important issues that possibly need to be addressed. They also suggested that I apply for a research contract to work on the issues.

To integrate meaningful information into an "Integrity Management Program", a data acquisition format needs to be implemented (as an MMS Notice to Lessees) so the operators can satisfy the regulatory requirements and at the same time establish a database of information to monitor overall pipeline stability from year to year.

We are assisting pipeline operators establish in-house procedures to satisfy their Integrity Management Programs. More comprehensive guidelines would prove to be a real benefit.

Ms. Betsock, if you know of others that I should be in touch with, I would appreciate been steered in the right direction.

The following are excerpts from CFR Title 49, Volume 3, Rev. Oct 1, 2005 from the GPO (CITE: 49CFR195.248) page 177

#### TITLE 49-TRANSPORTATION

##### Subpart D\_Construction

##### Sec. 195.246 Installation of pipe in a ditch.

- (a) All pipe installed in a ditch must be installed in a manner that minimizes the introduction of secondary stresses and the possibility of damage to the pipe.
- (b) Except for pipe in the Gulf of Mexico and its inlets in waters less than 15 feet deep, all offshore pipe in water at least 12 feet deep (3.7 meters) but not more than 200 feet deep (61 meters) as measured from the mean low water must be installed so that the top of the pipe is below the underwater natural bottom (as determined by recognized and generally accepted practices) unless the pipe is supported by stanchions held in place by anchors or heavy concrete coating or protected by an equivalent means

These performance based guidelines are nebulous and applicable NTLs should direct the operators to a definitive solution as there are no recognized and generally accepted practices. Reference to diver observations by pushing an arm into the soil to refusal or measurement of shear strength is not realistic.

As outlined previously, this soil layer can be identified using a combination of acoustic systems and by direct measurement of soils density.

Very truly yours,

***Richard Seeger***



*SeaScape*

Technical Resources

8203 Sands Point Drive • Houston, TX 77036

Cell 713 703-3555

Email: SeascapeRS@earthlink.net

AFFILIATED WITH:



Harvey-Lynch Inc.  
12718 Century Drive  
Stafford, Texas 77477  
Phone: 281 240-5441  
Fax: 281 240-0932  
Email: RichardS@Harvey-Lynch.com